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AFRL awards contract to increase bandwidth potential

by Fran Crumb, Information Directorate

ROME, N.Y. — The Air Force Research Laboratory has awarded a $1,338,7890 contract to Raytheon Company of Falls Church, Va., to develop methods for increasing the efficiency of radio frequency bandwidth.

The 18-month agreement, "Cognitive Softstate Approach to Dynamic Spectrum Utilization and Heteromorphic Waveform Study," is funded by the Defense Advanced Research Projects Agency (DARPA) of Arlington, Va., under its Next Generation Communications program.

"Bandwidth is vital to a wide range of proliferating services in the wireless communication era — from sensors and cell phones to television and radios," said Ralph Kohler Jr., program manager in the AFRL's Sensors Directorate at Rome. "It is also in extremely short supply for the military and exceedingly expensive for civilian applications, in part because we don't use it as efficiently as we could."

"Raytheon researchers will develop ways to squeeze more use from this limited resource," said Kohler. "The key is to put to use bandwidth that's not being used at a particular time and place. As an example, television stations use one frequency for normal programming, while another is set aside for remote broadcasts. The latter frequency allocation is seldom used, but could be used on a non-interfering basis be others."

"Commercial firms like taxi companies and trucking operations, all have been assigned exclusive rights to specific frequencies in specific geographical areas," Kohler explained. "However, these frequencies may actually by used only a fraction of the day, especially when broken up into very small time intervals. There may well be ways to negotiate the use of unused bandwidth space, which can increase the effectiveness of the radio frequency spectrum from 10 to 100 times."

"The commercial impact of this technological advance is virtually unlimited," Kohler said. "In the most recent FCC spectrum auction, companies purchased a total of $17 billion in currently unused spectrum, so there is clearly a commercial demand for more." **@**